

JASON -3 ILRS SLR MISSION SUPPORT REQUEST FORM

(September 2013)

SECTION I: MISSION INFORMATION:

General Information:

Satellite Name: Jason-3

Satellite Host Organization: NOAA / EUMETSAT

Web Address:

Contact Information:

Primary Technical Contact Information:

Name: Cedric TOURAIN

Address: CNES, BPi 612, 18 av. Edouard Belin
31401 Toulouse Cedex 9, FRANCE

Phone No.: 33 – (0)5 61 27 34 54

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E-mail Address: cedric.tourain@cnes.fr

Alternate Technical Contact Information:

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E-mail Address: luca.cerri@cnes.fr

Primary Science Contact Information:

Name: Frank Lemoine

Address: NASA/GSFC code 698
Greenbelt, Maryland 20771 U.S.A.

Phone No.: 1 - 301-614-6109

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Alternate Science Contact Information:

Name: John Ries

Address: Center for Space Research, R1000
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Phone No.: 1- 512 471 7486

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Alternate Science Contact Information:

Name: John Lillibridge

Address: NOAA/NESDIS/STAR: E/RA31
NCWCP Room 3744
5830 University Research Ct.
College Park, MD 20740-3818

Phone No.: 1 - 301-683-3376

E-mail Address: john.lillibridge@noaa.gov

Alternate Science Contact Information:

Name: Pascal Bonnefond
Address: Observatoire de la Côte d'Azur - Géoazur - GRGS
250 rue Albert Einstein
Bat. 4, Les Lucioles 1, Sophia Antipolis
F-06560 Valbonne France
Phone No. : (33-4)/(04)-83-61-85-63
Fax No.: (33-4)/(04)-83-61-86-10
E-mail Address: Pascal.Bonnefond@obs-azur.fr

Mission Specifics:

Scientific or Engineering Objectives of Mission:

The Jason-3 mission is a joint oceanography mission to monitor global ocean circulation, climate change and sea-level rise. The Jason-3 satellite is the follow-on to the TOPEX/POSEIDON, Jason-1 and Jason-2 satellites. Two other instruments, LPT and Carmen-3, will study the radiation environment at the Jason-3 altitude.

Satellite Laser Ranging (SLR) Role of Mission:

Precision orbit determination is a fundamental requirement for achieving the goals of the Jason-3 mission. The SLR data play an important role in two ways (1) providing strong tracking information to complement GPS and DORIS, and (2) providing a unique and unambiguous verification of the absolute radial orbit accuracy.

Anticipated Launch Date: April 2015

Expected Mission Duration: 5 years

Orbital Accuracy Required: 1.5cm RMS on the radial component

Anticipated Orbital Parameters:

Altitude: 1336Kms
Inclination: 66°
Eccentricity: $\approx 10^{-3}$
Orbital Period: 112.38 mn
Frequency of Orbital Maneuvers : 1 every 2 months (w.r.t. average solar activity)
Mission Timeline: 5 years

Tracking Requirements:

Tracking Schedule: 24 hours, 7 days a week
Spatial Coverage: global
Temporal Coverage: as dense as possible

Operations Requirements:

Prediction Center: CNES
Prediction Technical Contact Information:
Name: Cédric TOURAIN
Address: CNES, BPi 2002, 18 av. Edouard Belin
31401 Toulouse Cedex 9, FRANCE
Phone No.: 33 – (0)5 61 27 34 54
Fax No.: 33 – (0)5 61 28 25 95
E-mail Address: cedric.tourain@cnes.fr

Priority of SLR for POD: high priority (essential for best POD; critical for orbit accuracy verification)

Other Sources of POD (GPS, Doppler, etc.): DORIS

Normal Point Time Span (sec): 15 seconds

Tracking Network Required (Full/NASA/EUROLAS/WPLTN/Mission Specific): Full

SECTION II: TRACKING RESTRICTIONS:

Can detector(s) or other equipment on the spacecraft be damaged or confused by excessive irradiation, particularly in any one of these wavelengths (532nm, 1064nm, 846nm, or 423nm)?

No.

Are there times when the LRAs will not be accessible from the ground?

No (in nominal activity)

Is there a need for an altitude tracking restriction?

No. What altitude (degrees)? N/A

Is there a need for a go/no-go tracking restriction?

No. For what reason(s)? N/A

Is there a need for a pass segmentation restriction?

No. For what reason(s)? N/A

Is there a need for a laser power restriction? No

Under what circumstances? N/A

What power level (mW/cm²)? N/A

Is manual control of transmit power acceptable? Yes

For ILRS stations to range to satellites with restrictions, the mission sponsor must agree to the

following statement:

"The mission sponsor agrees not to make any claims against the station or station contractors or subcontractors, or their respective employees for any damage arising from these ranging activities, whether such damage is caused by negligence or otherwise, except in the case of willful misconduct."

Please initial here to express agreement: VC

Other comments on tracking restrictions: N/A

SECTION III: RETROREFLECTOR ARRAY INFORMATION:

A prerequisite for accurate reduction of laser range observations is a complete set of pre-launch parameters that define the characteristics and location of the LRA on the satellite. The set of parameters should include a general description of the array, including references to any ground-tests that may have been carried out, array manufacturer and whether the array type has been used in previous satellite missions. So the following information is requested:

Retroreflector Primary Contact Information:

Name: Daniel ESTEBAN-FERNANDEZ

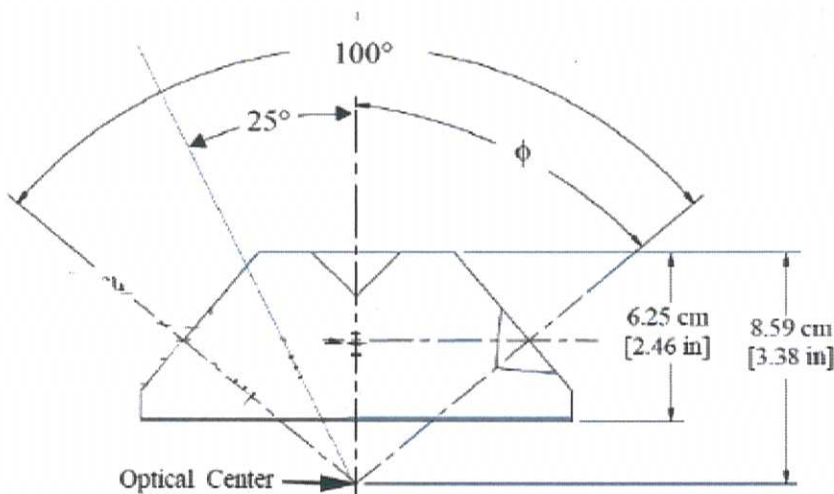
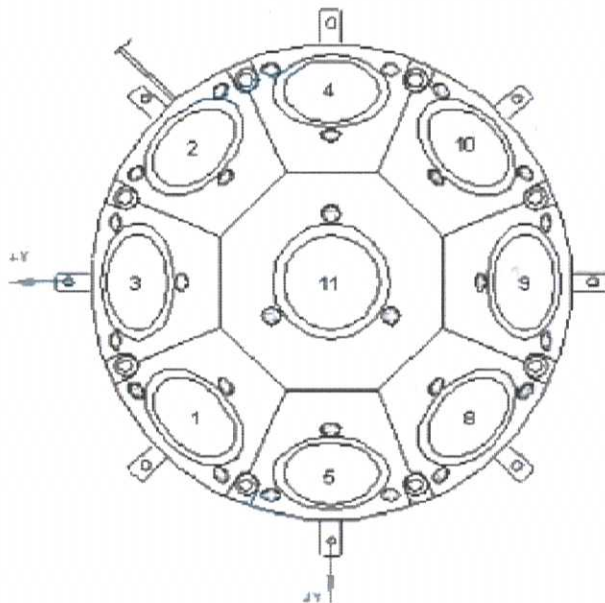
Address: 4800 Oak Grove Dr, Pasadena, CA 91109, US

Phone No.: 1 - 818.393.7443

Fax No.:

E-mail Address: Daniel.Esteban-Fernandez@jpl.nasa.gov

Array type (spherical, hexagonal, planar, etc.), to include a diagram or photograph:
Hemispherical array consisting of 9 corner cubes on nadir side of the satellite



Array manufacturer:
ITE Inc.
13217 New Hampshire Ave. #10796
Silver Spring, MD 20914
US
(301) 328-0504

The LRA design and/or type of cubes was previously used on the following missions:
Jason-1 Jason-2

The 3-D location (possibly time-dependent) of the satellite's mass center relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The 3-D location of the phase center of the LRA relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The position and orientation of the LRA reference point (LRA mass-center or marker on LRA

assembly) relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The position (XYZ) of either the vertex or the center of the front face of each corner cube within the LRA assembly, with respect to the LRA reference point and including information of amount of recession of front faces of cubes:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The orientation of each cube within the LRA assembly (three angles for each cube):

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The shape and size of each corner cube, especially the height:

A LRA correction map will be provided at the satellite launch.

RETROREFLECTOR ARRAY REFERENCES

SECTION IV: MISSION CONCURRENCE

As an authorized representative of the **Jason- 3** mission, I hereby request and authorize the ILRS to track the satellite described in this document.

Name (print): Véronique Couderc _____ Date 2013/09/25 _____

Signature:

 _____

Position: CNES Jason-3 System Manager _____

Send form to: ILRS Central Bureau

c/o Carey Noll

NASA GSFC

Code 690

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